



Big Hole Watershed Committee

Monthly Meeting Minutes

March 20, 2024 – 7:00 pm at the Divide Grange
Zoom option also provided

In Attendance

In-person: Pedro Marques, BHWC; Tana Lynch, BHWC; Ben LaPorte, BHWC; Tom Bowler, Resident; Betty Bowler, Resident; Craig Fellin, Big Hole Lodge; Mark Raffety, Rancher/BHWC; Dave Duffy, Resident; John Jackson, Rancher/BHWC/Beaverhead County Commissioner; Tim Fay, Resident; Cass Kohler, TNC; Mary Ann Nichola, Dillon Resident; Ryan Kreiner, MFWP; Dean Peterson, Rancher/BHWC; Sean Lewis, NRCS; Jim Berkey, TNC; Charlie Ivor, Resident; Kelsey Vershum, TNC; Duncan Adams, Montana Standard; Jenna Dohman, MBMG; Mary Sutherland, MBMG; Kaitlin Boren, DNRC; Jim Hagenbarth, Rancher/BHWC; Art Mangels; Randy Smith, Rancher/BHWC; JM Peck, Rancher/BHWC; Susan Ovitt, Resident/Business Owner; Katelin Killoy, MFWP; Roy Morris, GGTU/BHWC; and Jim Keenan, BSB-Water/BHWC.

Zoom: Baskin; Bridgar; Brian Wheeler, BHRF/BHWC; Steve Luebeck, Sportsman/BHWC; and Arica Crottof, University of Montana Western.

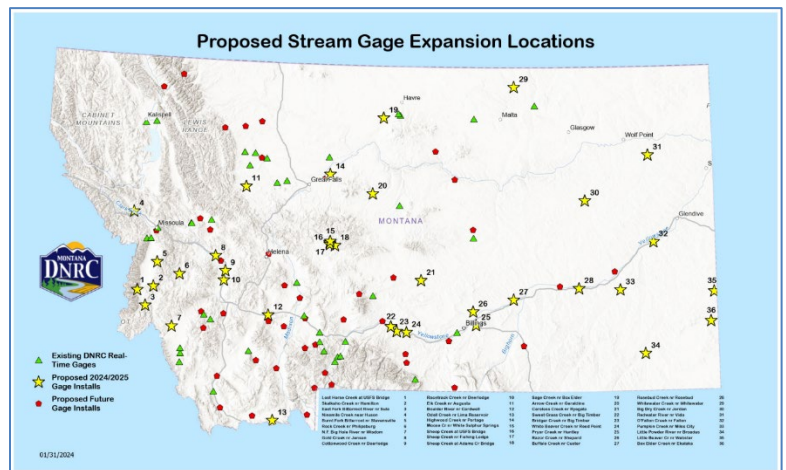
Meeting Minutes

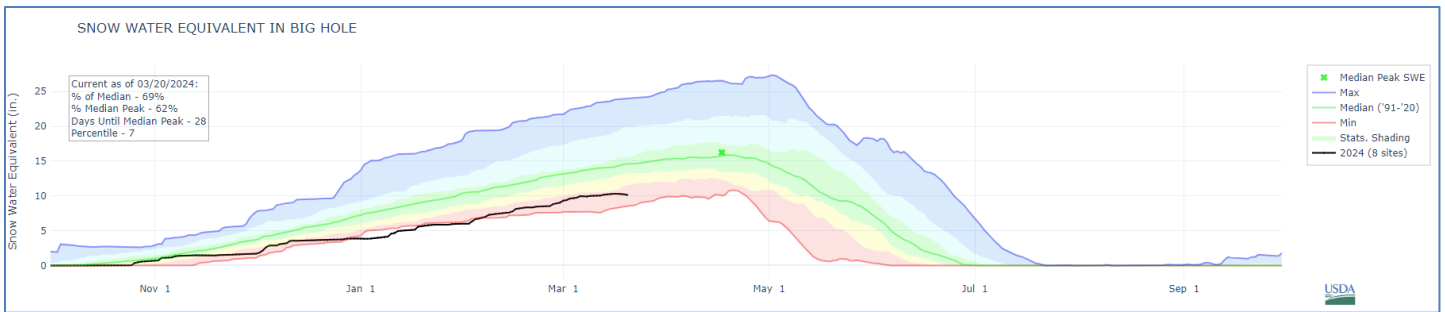
BHWC monthly meetings are held at the Divide Grange with a virtual (Zoom) option provided thanks to Southern Montana Telephone Company, who donated the internet service. Meeting minutes and recordings are available at <https://bhwc.org/monthly-meetings/> (scroll down for meeting minutes archive). Printed copies are available during in-person meetings. Contact Tana Lynch, BHWC Associate Director, at tlynch@bhwc.org or (406) 267-3421 to suggest additions or corrections.

Reports

Streamflow and Snowpack Report – Kaitlin Boren, Department of Natural Resources and Conservation

- **Streamflows:** All stream gages on the Big Hole River are either reporting ice conditions or are in seasonal status.
 - Stream And Gage Explorer (StAGE): <https://gis.dnrc.mt.gov/apps/stage/>
- **Snow Water Equivalent (SWE):** 69% of median

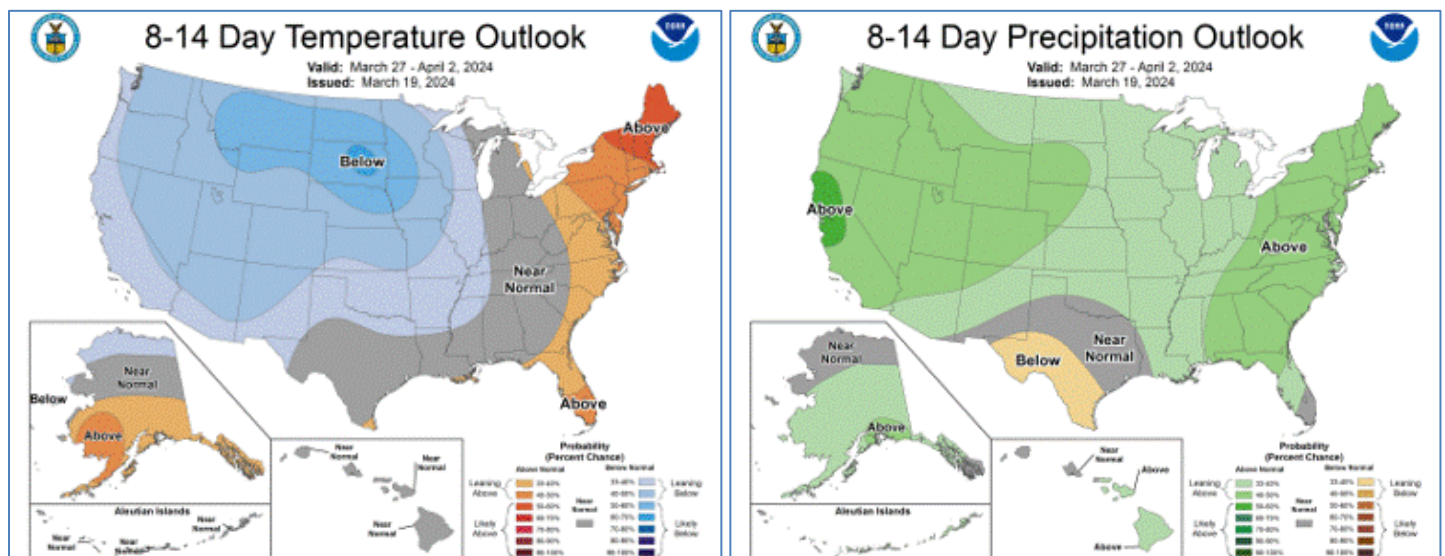


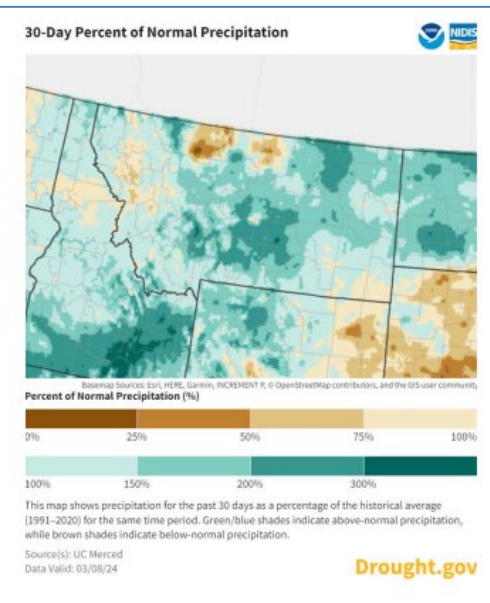
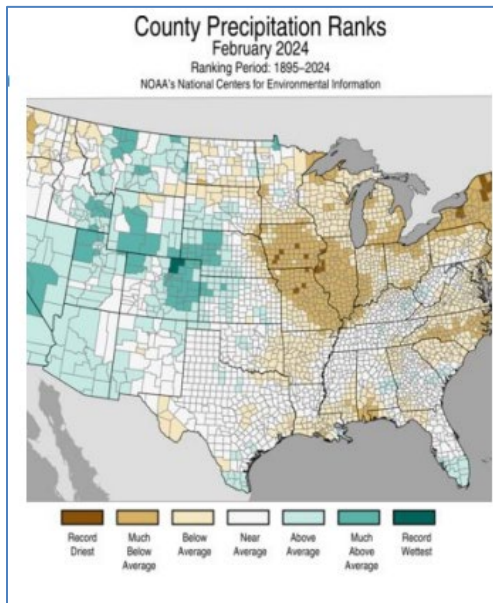
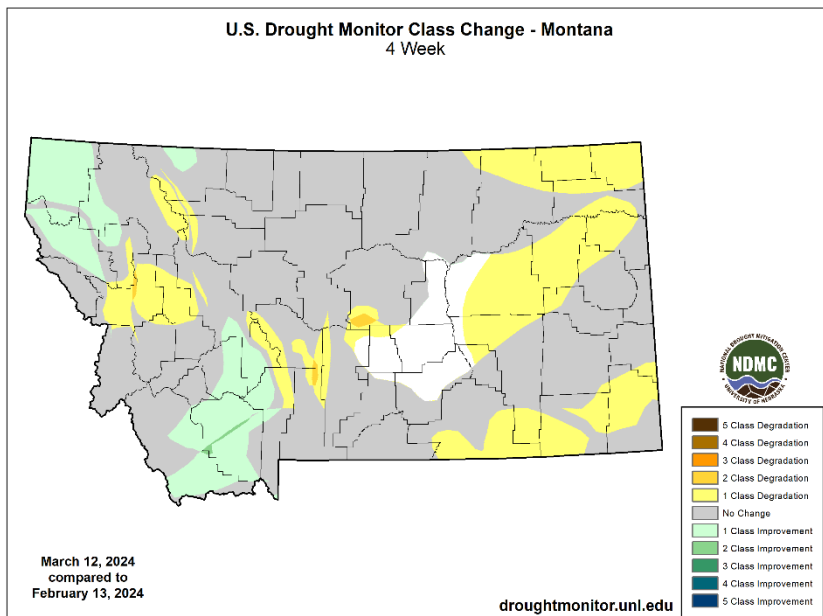
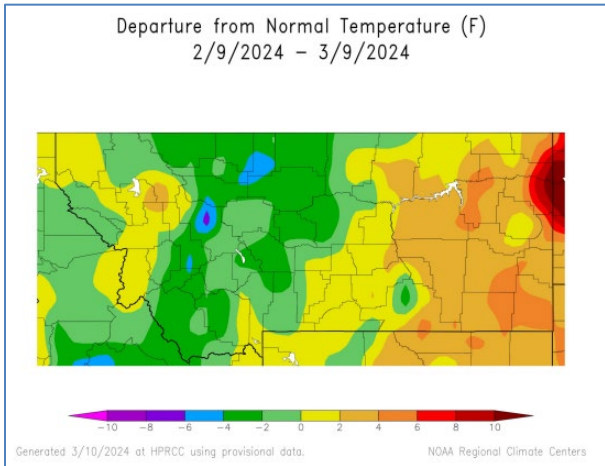
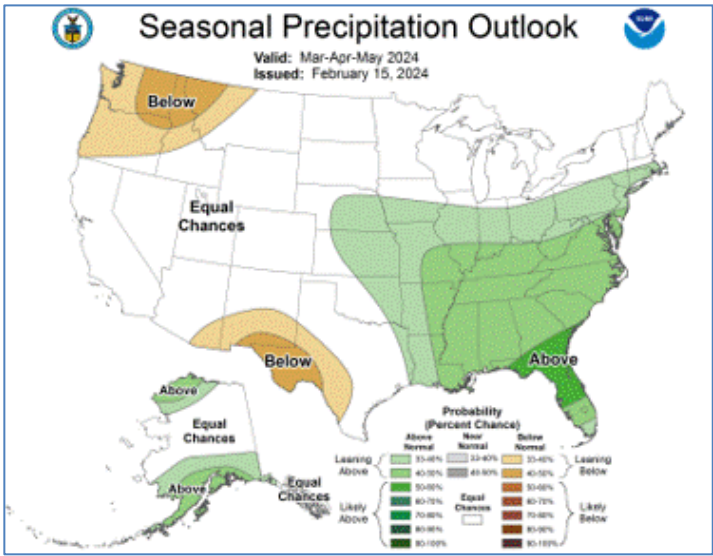
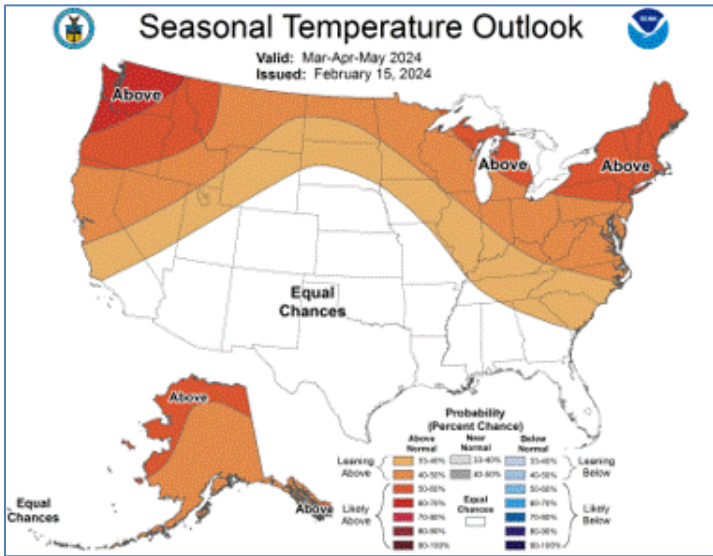


- **Hypsome-SWE for Big Hole (Huc8: 10020004): 77% of normal**
 - Hypsme-SWE is a way to evaluate snowpack distribution on a watershed scale level. It evaluates the relationship between the cumulative snow water equivalent in m³ and elevations through a comparison of a particular day's median values to the SNODAS period of record (2004-present).
- **Precipitation: Currently 72% of median**



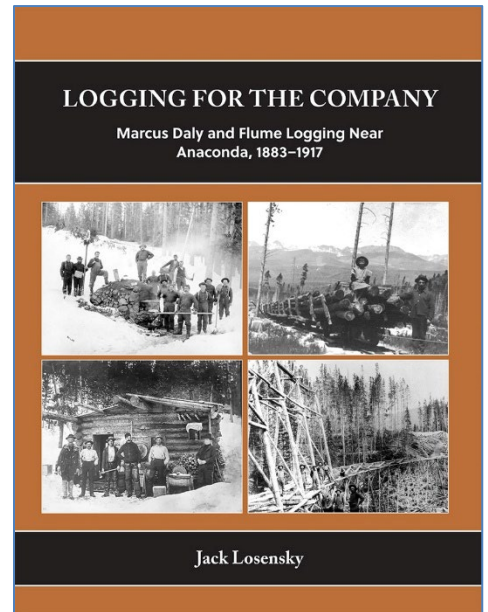
- **Outlook:** The 8-14 day outlook predicts slightly below normal temperatures and slightly above normal precipitation.
- **Seasonal Outlook:** The three-month outlook (Mar-Apr-May) predicts above normal temperatures and slightly below normal precipitation.
 - **ENSO Alert System Status (from NOAA):** El Niño Advisory / La Niña Watch
 - **Synopsis:** A transition from El Niño to ENSO-neutral is likely by April-June 2024 (83% chance), with the odds of La Niña developing by June-August 2024 (62% chance).
 - **Drought Class Change:** The Big Hole watershed has seen “no change” to “1 Class Improvement” in drought conditions from March 12-February 13.





Director's Report – Pedro Marques, Executive Director

- Foundational Relationships- PRIVATE
 - Broad Reach Fund- SECURED \$20,000 for beaver-related projects and capacity
 - High Stakes Foundation- REQUESTED \$15,000 for outreach and content creation
 - Cinnabar Foundation- REQUESTED \$15,000 for general capacity
- Other Happenings:
 - Cloud Seeding feasibility study in the Big Hole
 - MOU with Grayling Partners Program
 - Montana Beaver Working Group next week
 - *Logging for the Company* – Jack Losensky
 - Second Edition Books, Butte
 - Thrifty Drug, Anaconda
- Proposal Season:
 - **RDGP Planning- Elkhorn Biofiltration** (submitted- BVHD CD)
 - **RRGL- Pennington Bridge** (May 15- Madison CD)
 - Design (2023) getting contracted
 - Construction request (BoR in October)
 - **RRGL- Melrose Diversion** (May 15- Madison CD)
 - Construction request (BoR in October)
 - **RDGP- Elkhorn Mine and Mill** (May 15- BVHD CD)
 - **RRG Irrigation- Wise River** (Apr. 22- BVHD CD)
 - **RRG Irrigation- Jerry Cr** (Apr. 22- SilverBow CD)
 - **RRGL Planning- High Meadow Storage** (Apr. 30-BVHD CD)
 - **GWIP Feasibility- Managed Aquifer Recharge** (July)



Steering Committee Report – Jim Hagenbarth, Chair; Dean Peterson, Vice-Chair; Steve Luebeck, Treasurer; and Roy Morris, Secretary

- The Steering Committee has considered a proposal by E.D. Pedro Marques to allow Pedro to work remotely from Brazil for one year starting this fall. This is a once in a lifetime opportunity for Pedro to raise his kids for a period of time in his and his wife's native country. The steering committee has approved



the proposal and sent it to the full board for review.

- The board has reviewed and approved the proposal.

Communications and Wildlife Report – Tana Lynch, Associate Director

- Communications:
 - Proposal - MACD Mini-Grant (\$4,000)
 - Folk Fest, Outreach display, Owl camera
 - Pay upon publication article
 - Pathos Communications
 - Look for it ~April 22nd
 - Earth Day!
 - Major media outlets
 - Preparing for increased visibility:
 - Website (bhwc.org)
 - YouTube
 - Harness campaigns
- Wildlife Program Update:
 - Carcass Removal and Composting – in progress
 - (March-May)
 - Upper Big Hole Range Rider – planned
 - (July-September)
- What's new?
 - Driver Justin Cottingham
 - New funding sources!
- Wildlife Grants:
 - 2024 Livestock Loss Board
 - \$21,000 (secured)
 - America the Beautiful Challenge (NFWF)
 - WLA/HRI
 - subaward secured – amount pending
 - 4-year grant
 - Regional Conservation Partnership Program (USDA)
 - WLA/HRI
 - subaward secured – amount pending
 - 5-year grant

Restoration Report – Ben LaPorte, Program Manager

- Project Planning, Project Planning, and Grant Writing!!!
 - Smith Sage Springs Film: MT Film Office Grant
 - \$50,000 requested
 - Elkhorn Ranch Revegetation and Fencing Project: DEQ 319 Grant
 - Mount Haggin Culvert Bids In!
 - RE Miller awarded the project within allocated budget
- Other Happenings:
 - East Pioneer Riparian Conifer Encroachment Planning
 - Tentative dates: April 8- April 12

- Upper Oregon Creek Outreach Film is finalized!

New Business

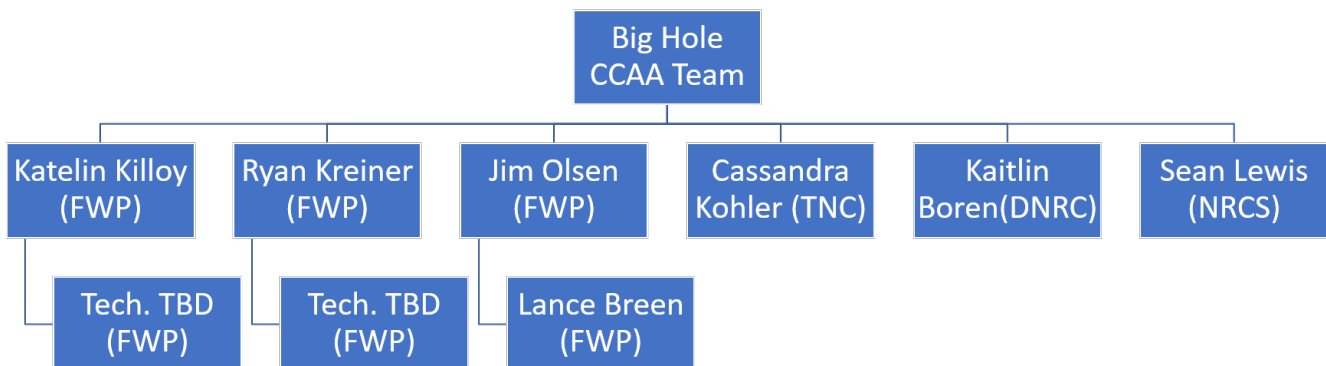
Break – 10 minutes

Meeting Topic:
Upper Big Hole Arctic Grayling CCA

Presented by:

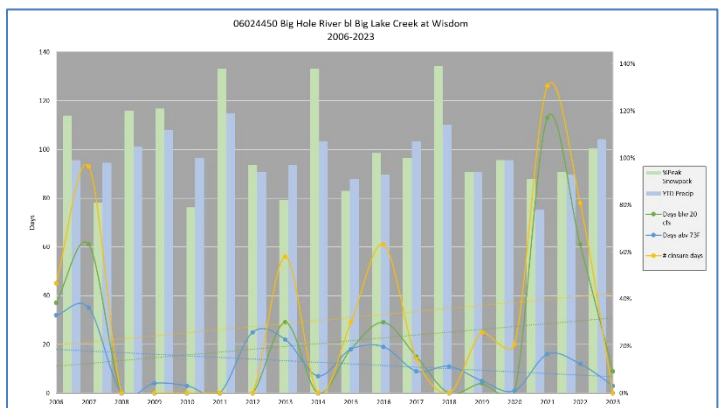
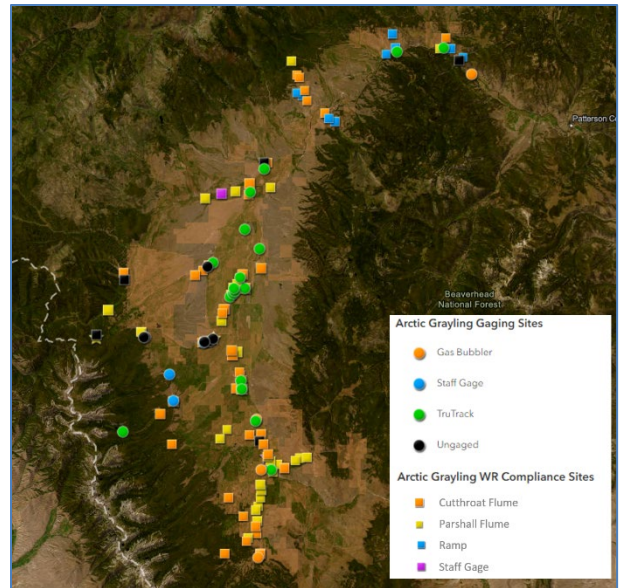
Katelin Killoy, Grayling Habitat Biologist – Montana FWP
Cassandra Kohler, TNC (previously with Montana FWP)
Ryan Kreiner, Fisheries Biologist – Montana FWP
Kaitlin Boren, Surface Water Hydrologist – Montana DNRC
Sean Lewis, District Conservationist – NRCS

- New Team Member Introductions:
 - Katelin Killoy – Big Hole and Centennial Valley CCA Riparian Ecologist
 - Administers the Big Hole and Centennial CCA Programs
 - Landowner relations
 - Enrollment and Site Plan Development
 - Project Development (Partner’s Program)
 - Permitting: 404, 124, 318, Floodplain, etc.
 - Riparian Management Plans, Restoration, Assessments, etc.
 - Assists with Native Species Biologist, Hydrologist, Partner’s Program, and other related riparian habitat projects
 - Kaitlin Boren, Big Hole CCA Hydrologist

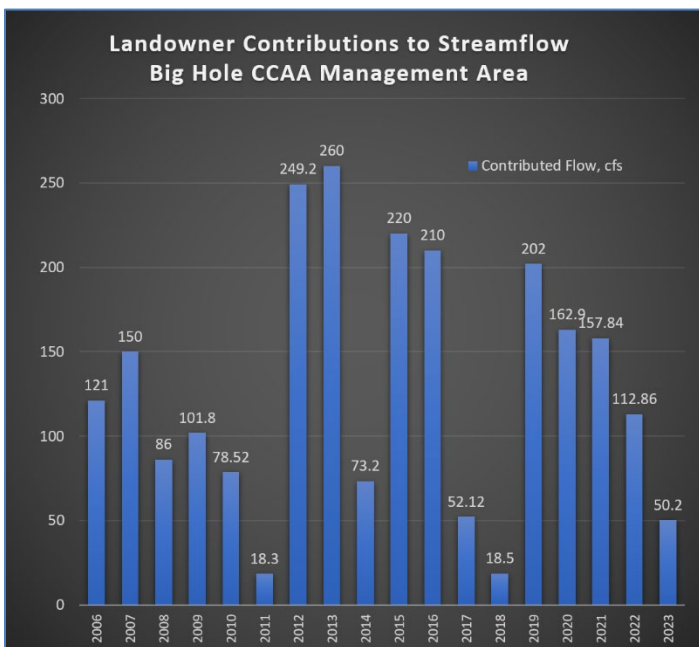


- Cass Kohler has taken a position with TNC but will remain involved with the CCA.
- Candidate Conservation Agreement with Assurances for Fluvial Arctic Grayling in the Upper Big Hole River
 - “The conservation goal of this Agreement (CCA) is to secure and enhance a population of fluvial (river-dwelling) Arctic grayling (*Thymallus arcticus*) (grayling) within the upper reaches of their historic range in the Big Hole River drainage.”

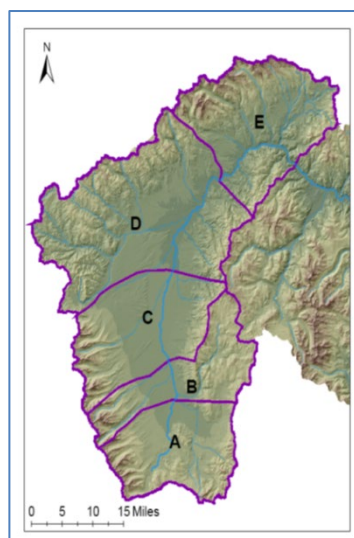
- Achieved through 4 conservation measures:
 1. Improve streamflows
 2. Improve and protect the function of riparian habitats
 3. Identify and reduce or eliminate entrainment threats for grayling
 4. Remove barriers to grayling migration
- Current Big Hole Enrollment
 - 30 landowners
 - Several recent property transfers and new landowners
 - 167,084 acres
 - 161,564 private land acres
 - 5,520 DNRC leased lands
- Conservation Measure 1 – Improved Streamflows
 - CCAA Flow targets met in 2023
 - 81% April 1-October 31
 - 50.2 cfs in Landowner Streamflow Contributions
 - Compliance completed in May and Sept 2023
 - 29 landowners monitored
 - 100+ measuring devices monitored and found in compliance
 - 4 DNRC Real-time gage stations, 2 USGS gages, 18 TruTrack sites
 - 2024 Stream Monitoring Site Updates
 - Working towards monitoring



CCAA Management Reach	Spring Flow Targets (cfs)	Summer/Fall Flow Targets (cfs)
A	60	20
B	100	40
C	160	60
D	350	100
E	450	170



- <80% SWE for the Water



all grayling spawning and refuge tributaries

- Pintler
- Plimpton
- Fishtrap
- Warm Springs
- 2024 Big Hole Arctic Grayling CCAA Flow Strategy
 - Criteria for implementation of strategy by May 1st, 2024: Year

- <80% snowpack for valley floor to mid-elevations
- <80% snowpack for high elevations
- <80% Precipitation for the Water Year
 - Higher than average air temperatures before May 1.
 - Peak spring runoff starting earlier than May 1 (Average peak is ~ early June).
 - Climate forecast for May and June with less than average precipitation predictions.
- Potential changes May 1st to June 30th:

Reach	Current Spring Target	Location	Proposed Target	Location
A	60 CFS	Miner Lakes Road	60 CFS	Wisdom
B	100 CFS	Hirschy Bridge	60 CFS	Wisdom
C	160 CFS	Wisdom	60 CFS	Wisdom

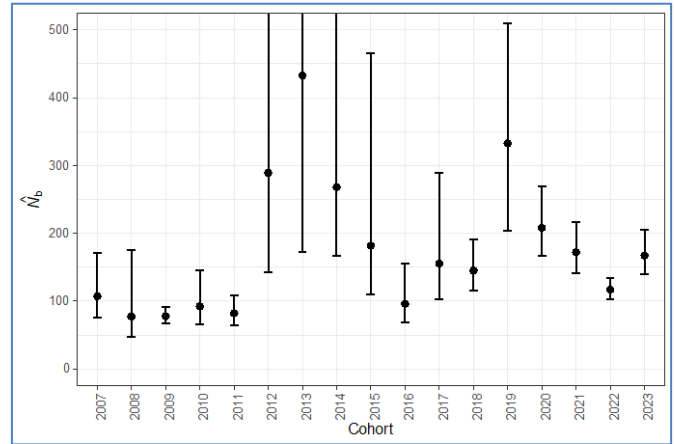
- Potential changes July 1st to October 31st:

Reach	Current Summer Target	Location	Proposed Target	Location
A	20 CFS	Miner Lakes Road	60 CFS	Wisdom
B	40 CFS	Hirschy Bridge	60 CFS	Wisdom
C	60 CFS	Wisdom	60 CFS	Wisdom

- 2023 Instream Flow projects:
 - Big Lake Creek – stock tank repair
 - Rock Creek – 2 headgates
 - Howell Creek – Headgate and flume
 - Fishtrap Creek – Headgate and flume
 - East Fishtrap Creek – Flume
 - Miner Creek – headgate
- 2024 Instream Flow projects:
 - 4 projects planned:
 - Warm Springs Creek headgate
 - North Fork flume
 - Ditch efficiency
 - Ditch repair
- Conservation Measure 2 – Improve and Protect the Function of Riparian Habitats
 - Grazing strategies and projects are working, but work remains
 - Big Hole River Restoration and High Flow Channel Activation
 - Collector app for riparian assessments developed
 - Corey Richidt, DNRC
 - NRCS Rapid Riparian Assessments
 - Scores streams across 10 categories focusing on:

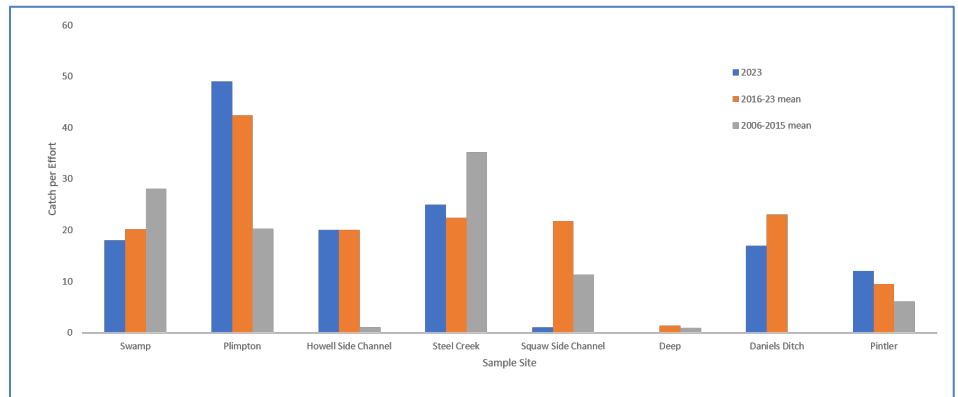
- Vegetation
 - Stream morphology
- Rating score ranges
 - 0-49 Non-sustainable
 - 50-79 At Risk
 - 80-100 Sustainable
- Current Riparian average for the Big Hole on enrolled lands is 78.08% on 259 miles
 - 65.12 miles completed in 2023
 - Initial assessment average 69.6%
- Stockwater Systems:
 - Provides a water source in upland pastures
 - In riparian pastures allows cattle to access water without needing to go to the stream
 - Reducing bank trampling
 - Reduces grazing on deep rooting species like willows or sedges
 - Provides greater bank stability
 - Increases cover of willows
 - Reduces fine sediment input into the stream
- 2023 Instream and Riparian Habitat projects:
 - Big Hole River – Big Hole River restoration and high flow activation channel
 - Big Hole River and tributaries – 2 stockwater systems from spring developments
 - Big Hole River and tributaries – 11 stockwater systems from wells
 - Big Hole River and tributaries – 8 wells for stockwater systems
- USDA Natural Resources Conservation Service (NRCS):
 - Partner in Conservation with CCAA since early 2000's
 - Montana Focused Conservation (MFC)
 - Targeted Implementation Plans (TIP)
 - Upper Big Hole Offsite Water TIP 2022
 - \$241k NRCS and \$100k partner contribution for about 17 projects
 - Wisdom Reach Stock-Water Development TIP
 - \$367k NRCS and \$150k partner contribution for another 17 projects
 - Contribution agreement with partners to fund ½ of full-time position to facilitate ongoing work necessary for the CCAA and our commitments to landowners
 - If you want more information on approved TIPs go to Montana NRCS, What's Available in My County
- 2024 Instream and Riparian Habitat projects:
 - 18 projects
 - Governor Creek restoration
 - 17 stock tank systems
- Fish Passage:
 - Stream miles (%) accessible to grayling:
 - Tier I- 82(98%; pre-CCAA=87%)
 - Tier II- 61(67%; pre-CCAA=27%)
 - Tier III- 32(20%; pre-CCAA=6%)
- Conservation Measure 4 – Remove barriers to grayling migration:
 - 2023 fish passage projects:

- Big Swamp Creek – bridge
- Howell Creek – fish ladder
- 2024 fish passage projects:
 - 1 project – Big Swamp Creek
- Entrainment:
 - Tier I- 82(98%; pre-CCAA=87%)
 - Tier II- 61(67%; pre-CCAA=27%)
 - Tier III- 32(20%: pre-CCAA=6%)



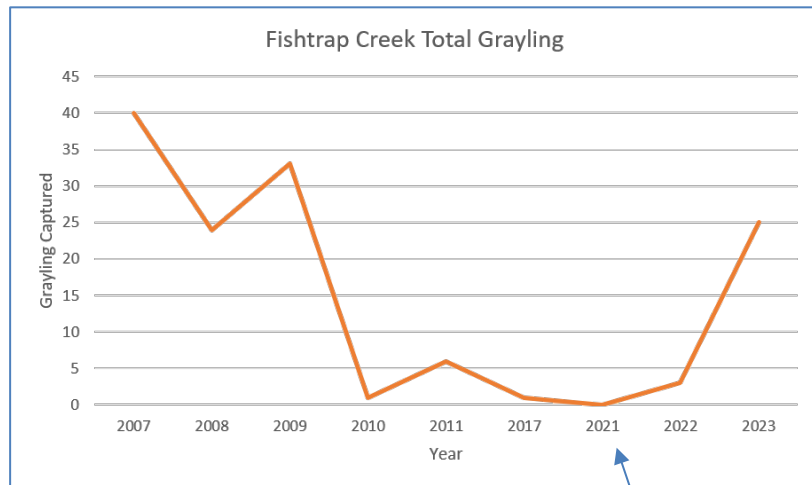
Big Hole River Arctic Grayling – Ryan Kreiner, FWP Native Fish Biologist

- Effective number of breeders:
 - Number of effective breeders that gave rise to a single cohort
 - Lower than actual population size
 - In salmonids, it is typically 0.13-0.15 of the actual population size
 - CV: Mean Nb is 0.19 of the population estimate
- How many grayling are actually out there?
 - 2023 Nb: 167.2 (95% CI= 139.8-205.1)
 - Using 0.19 we would estimate there were **880 (736-1079)** spawning adults in 2023



- Big Hole genetic variation (H_e and A_r):
 - A_r = Allelic richness:
 - Describes the number of alleles in a population
 - Sensitive metric for monitoring
 - Adaptive potential
 - H_e = expected heterozygosity:
 - Describes the genetic variation (genotypes with different alleles) in a population
 - Fundamental in conservation and population genetic theory
- Big Hole Fish Passage:
 - CCAA threats:
 - Barriers to fish movement:
 - Diversion structures
 - Beaver dams
 - Beaver dam surveys:

▪ 2021-2022: Fishtrap Creek



FWP began notching beaver dam

- 2023: Steel, Swamp, Plimpton, Deep, LaMarche
 - Steel Creek:
 - 2007-2021 mean: 28 YOY
 - 2022: Captured 6 YOY in lower 400 yds
 - Notched 7 dams in 2023
 - Captured 25 YOY in 3 miles of stream
 - Plimpton Creek:
 - 2009-2021: 35 YOY
 - 2022: 13 YOY in lower 0.7 miles
 - 2023: Eight Dams were notched
 - 49 YOY in 1.5 miles
 - Total Habitat Available in 2023:

Upcoming Meetings

- April 17, 2024: **Invasive Weeds in the Big Hole Watershed**
 - 7:00 PM at the Divide Grange Hall
- May 15, 2024: **Big Hole River Fishery Update**
 - 7:00 PM at the Divide Grange Hall

Adjourn

	Accessible habitat in 2022 (miles)	Accessible Habitat in 2023 (notching)	Accessible Habitat in 2023 (natural)	Total Accessible Habitat in six tributaries
Steel	0.3	3.0		3.0
Plimpton	0.7	1.5		1.5
Deep	0.3		1.7	1.7
Swamp	1.0		2.5	2.5
LaMarche	0.2	0.9		0.9
Fishtrap	0.1 (2021)	1.0		1.0
Total	2.6	6.4	4.2	10.6